



Retention of eroded carbon in terrestrial and fluvial depositional systems

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The net impact of soil erosion on the global carbon cycle remains a highly debated topic in the geoscience community. While there is experimental evidence to suggest that upland depressions and fluvial reservoirs can act as C sinks, it is important to recognize that these depositional systems are not passive receptacles of materials but the sites of intense biogeochemical reactions driving C mineralization and the emission of greenhouse gases (GHG). This consideration is especially relevant to nutrient-rich systems where GHG emission and autochthonous production could be particularly intense. With the view that these processes ultimately determine the magnitude and direction of the C balance of depositional systems, this presentation will focus on: (i) the mineralization and chemical attributes of eroded C in relation to land-use and rainfall characteristics, (ii) the factors controlling GHG (CO₂, N₂O, CH₄) emission from fluvial reservoirs, and (iii) the chemistry of C accumulated in fluvial sediments in an effort to characterize C sources and assess the significance of priming effect in these depositional environments.